

WHAT IS CLAIMED IS:

1. An impact and torque-absorbing prosthetic shock module comprising:
 - an inner support member;
 - an outer support member, said inner and outer support members being coaxially supported relative to one another and capable of relative rotation and axial translation;
 - a resilient element resisting axial displacement of the support members;
 - a torque resisting cuff providing torsional resistance to relative rotational motion between said support members wherein said cuff has a generally tubular shape and is proximally attached to an outer surface of one of said support members and distally attached to an outer surface of the other of said support members; and
 - an adapter for proximally attaching said shock module to a stump-supporting socket or intermediate device, wherein said adapter can be at least partly removed to allow replacement of the resilient element.
2. The shock module of Claim 1, wherein said adapter is attached with a pinch bolt.
3. The shock module of Claim 1, wherein said adapter is hingedly attached to said shock module.
4. The shock module of Claim 1, wherein the inner support member is received within the outer support member.
5. The shock module of Claim 1, wherein the resilient element is received within the inner support member.
6. The shock module of Claim 1, wherein the inner support member is an upper support member.
7. The shock module of Claim 1, wherein the outer support member includes a base for limiting the movement of the inner support member.
8. An impact and torque-absorbing prosthetic shock module for a low profile prosthesis comprising:
 - an inner support member;

an outer support member, said inner and outer support members being coaxially supported relative to one another and capable of relative rotation and axial translation;

a precompressed resilient element resisting axial displacement of the support members;

a torque resisting cuff providing torsional resistance to relative rotational motion between said support members wherein said cuff has a generally tubular shape and is proximally attached to an outer surface of one of said support members and distally attached to an outer surface of the other of said support members; and

an adapter for proximally attaching said shock module to a stump-supporting socket or intermediate device.

9. The shock module of Claim 8, wherein the axial length of the torque resisting cuff is greater than about half the axial length of the inner support member.

10. The shock module of Claim 8 further comprising a bearing between the inner and outer support members.

11. The shock module of Claim 8, wherein the torque resisting cuff has a maximum uncompressed diameter of about 50 mm or less.

12. The shock module of Claim 8, wherein the maximum axial displacement of one support member relative to the other support member is about 9 to 10 mm.

13. The shock module of Claim 8, wherein said shock module has a maximum axial length of no more than about 130 mm.

14. The shock module of Claim 8, wherein the resilient element comprises a urethane rod.

15. The shock module of Claim 8, wherein the resilient element has a diameter of between about 10 and 20 mm.

16. The shock module of Claim 8, wherein the resilient element has a precompressed axial length of no more than about 70 mm.

17. The shock module of Claim 8, further comprising an o-ring placed under the distal end of the inner support member.

18. The shock module of Claim 8, further comprising a precompression member that keeps the resilient element in precompression.

19. An impact and torque absorbing lower limb prosthesis comprising:

an upper support member;

a lower support member, said upper and lower support members being coaxially supported relative to one another and capable of relative rotation and axial translation;

a resilient element resisting axial displacement of the support members;

a torque resisting cuff providing torsional resistance to relative rotational motion between said support members wherein said cuff has a generally tubular shape and is proximally attached to an outer surface of one of said support members and distally attached to an outer surface of the other of said support members;

an adapter operably connected to said upper support member for proximally attaching said prosthesis to a stump-supporting socket or intermediate device; and

a prosthetic foot member having a ground contacting portion adapted to contact a ground surface operably connected to said lower support member;

wherein the vertical height from the ground contacting portion of the foot to the top of the adapter is about 160 mm or less.

20. The prosthesis of Claim 19, wherein the maximum axial length of the shock module is no more than about 130 mm.

21. The prosthesis of Claim 19, wherein the precompressed axial length of the resilient member is no more than about 70 mm.

22. The prosthesis of Claim 19, wherein the diameter of the resilient member is no more than about 20 mm.

23. The prosthesis of Claim 19, wherein the vertical height from the ground contacting portion of the foot to the top of the adapter is no more than about 140 mm.

24. A shock module comprising:

an upper support member and a lower support member, said upper and lower support members being coaxially supported relative to one another and capable of relative rotation and axial translation;

a torque resisting cuff providing torsional resistance to relative rotational motion between said support members, wherein said cuff has a generally tubular shape and is proximally attached to an outer surface of one of said support members and distally attached to an outer surface of the other of said support members; and

a resilient element resisting axial displacement of the support members;

wherein an upper end of the lower support member extends into the space surrounded by the torque resisting cuff.

25. The shock module of Claim 24, wherein the upper end of the lower support member extends higher than about the bottom quarter of the axial length of the torque resisting cuff.

26. The shock module of Claim 24, wherein the upper end of the lower support member extends above a horizontal plane that bisects the torque resisting cuff.

27. The shock module of Claim 24, wherein the upper end of the lower support member extends higher than about the bottom half of the axial length of the torque resisting cuff.

28. A shock module comprising:

an upper support member and a lower support member, said upper and lower support members being coaxially supported relative to one another and capable of relative rotation and axial translation;

a torque resisting cuff providing torsional resistance to relative rotational motion between said support members, wherein said cuff has a generally tubular shape and is proximally attached to an outer surface of one of said support members and distally attached to an outer surface of the other of said support members; and

a resilient element resisting axial displacement of the support members;

wherein said lower support member comprises a base at a lower end thereof and said base comprises at least a partially inclined attachment surface for attachment to a prosthetic foot member.

29. The shock module of Claim 28, further comprising a prosthetic foot member comprising an inclined attachment surface attached to said lower support member.

30. The shock module of Claim 28, wherein the axial length of the torque resisting cuff is greater than about half the axial length of the inner support member.
31. The shock module of Claim 28, further comprising a bearing between the inner and outer support members.
32. The shock module of Claim 28, wherein the torque resisting cuff has a maximum uncompressed diameter of less than about 50 mm.
33. The shock module of Claim 28, wherein the maximum axial displacement of one support member relative to the other support member is no more than about 20 mm.
34. The shock module of Claim 28, wherein said shock module has a maximum axial length of no more than about 130 mm.
35. The shock module of Claim 28, wherein the resilient element comprises a urethane rod.
36. The shock module of Claim 28, wherein the resilient element has a diameter of no more than about 20 mm.
37. The shock module of Claim 28, wherein the resilient element has a precompressed axial length of less than about 70 mm.
38. The shock module of Claim 28, further comprising an o-ring placed under the distal end of the inner support member.
39. The shock module of Claim 28, wherein the base includes a roll up surface.